

# Udbhaw Anand

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## PROFILE

3rd-year AI Engineering student with hands-on experience in Computer Vision, YOLOv8-based object detection, and data annotation workflows. Proven track record building end-to-end ML solutions for defense-tech and autonomous UAV systems with expertise in dataset preparation, model training, and validation. 3x Hackathon Winner.

## TECHNICAL SKILLS

**Programming:** Python, JavaScript | **ML & CV:** YOLOv8, OpenCV, Object Detection, Image Processing, Data Annotation | **UAV:** PX4, MAVSDK, Gazebo, MAVLink | **Tools:** Git, React.js, Jupyter, Linux | **Core:** Dataset Preparation, Bounding Box Annotation, Model Validation

## KEY PROJECTS

### Blockchain-Based Blue Carbon MRV System

(Sept 2025 – Nov 2025)

- Developed AI-powered mangrove detection system using YOLOv8 with dual models (aerial + ground imagery) to verify carbon credit legitimacy through satellite and drone data validation
- Built automated duplicate detection pipeline and Trust Score generation system to ensure data integrity across 1000+ satellite image annotations
- Implemented end-to-end workflow: data collection, annotation, model training, inference, and verification dashboard
- Technologies:** YOLOv8, OpenCV, Python, React.js, Computer Vision, Geospatial Data Processing

### AI TRANSCOM – Military Transport Management

(Mar 2025 – Present)

- Built a 9-module system for convoy planning, route optimization & fuel forecasting for defense logistics.
- Improved planning speed by 30–40% and fuel forecasting by 20%, delivering secure, role-based, military-grade logistics.
- Technologies:** MERN (MongoDB, Express.js, React.js, Node.js), Firebase, Python, AI/ML

### Autonomous UAV Detection & Tracking System

(Nov 2025 – Present)

- Engineered autonomous UAV with YOLO-based real-time detection integrated with PX4 offboard control (MAVSDK, Gazebo SITL). Annotated and validated custom aerial dataset emphasizing consistency and edge cases
- Annotated and validated custom aerial dataset for detection model training with emphasis on annotation consistency and edge cases
- Technologies:** YOLOv8, PX4, MAVSDK, Gazebo, OpenCV, Python, MAVLink

## EXPERIENCE

### Computer Vision & UAV Autonomy Engineer

(Nov 2025 – Present)

Archonian Engineering, Ghaziabad, India

- Developing autonomous flight and perception pipelines for UAV platforms focusing on real-time object detection, tracking, and visual data quality validation
- Working on YOLO model training workflows: dataset annotation, augmentation, validation, and iterative improvement based on performance metrics
- Integrating CV algorithms with flight control systems (PX4, MAVSDK) and testing in simulation environments

## EDUCATION

### Bachelor of Technology in Artificial Intelligence

2023 – 2027 (Currently in 3rd Year)

ABES Institute of Technology, Ghaziabad, India

## ACHIEVEMENTS & CERTIFICATIONS

- 3x Hackathon Winner:** Led teams to victory in national-level hackathons focusing on AI, computer vision, and real-world problem solving with ML-driven solutions ([Certificate Link](#))
- Developed multiple end-to-end AI systems deployed in defense-tech, environmental monitoring, and infrastructure automation domains
- Active contributor to autonomous systems and computer vision projects with emphasis on practical deployment and real-world validation